DOCUMENT RESUME

ED 308 890 JC 890 321

AUTHOR Cantor, Jeffrey A.
TITLE Naval Shipyard Apprentice Program & Community-Technical College Linkages: A Model for Success.
PUB DATE Feb 88
NOTE 12p.; Paper presented at the Annual Conference of the Eastern Educational Research Association (Miami, FL, February 24-27, 1988).
PUB TYPE Reports - Descriptive (141) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Apprenticeships; Building Trades; Community Colleges; Cooperative Programs; *Federal Programs; *Government School Relationship; Technical Institutes; Trade and Industrial Education; Two Year Colleges
IDENTIFIERS *Shipyards

ABSTRACT

Each of the eight shipyards operated by the U.S. Navy administers a formal 4-year apprentice trades training program. The apprentice programs combine daily on-the-job training with classroom instruction in technical subjects related to work requirements, including shop math, chemistry, physics, and mechanical drafting. The programs are designed to ensure a supply of trained, skilled, and knowledgeable workers for shipyard operations, increase worker productivity, lessen the need for active supervision of employees, and control overall training within the craft. Several years ago, a project was initiated to involve local community colleges and technical institutes in providing classroom instruction for the apprenticeship programs. Specific goals of the project were to: (1) ascertain the needs of the shipyards for technical instruction which could be provided by the colleges; (2) provide the shipyards' instructional personnel with the skills and knowledge needed to negotiate agreements with the colleges; (3) prepare the documentation necessary to effect the inter-organizational linkages; and (4) develop a system for monitoring the effectiveness of the college-based training programs. A consultant was hired to foster linkages between the shipyards and the colleges. The consultant investigated the problems and experiences of the shipyard staff with area colleges and surveyed the local colleges about existing relevant programs and their interest in cooperation. In spite of special administrative and jurisdictional problems that had to be resolved in each locale, the program serves as a model for partnerships between colleges and industry. (JMC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED308890

Naval Shipyard Apprentice Program & Community-Technical College Linkages: A Model for Success

Jeffrey A. Cantor
Associate Professor
Lehman College
The City University of New York

presented at

Annual Conference
Eastern Educational Research Association
Miami, Florida
February, 1988

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
J. A. Cantor

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
X This document has been reproduced as received from the person or organization originating it
☐ Minor changes have been made to improve reproduction quality
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

JC 890 321

Naval shipyard apprentice program & community-technical college linkages: a model for success

Objective:

This paper describes a project undertaken by the National Shipbuilding Research Program, Education and Training Panel, and the U.S. Navy's Directorate for Shipyard Training. The project's objective was to develop a model for improved public sector (community college/technical institute) coordination and support for U.S. Navy Shipyard apprentice trades training programs in the areas of related education.

The Problem:

The U.S. Navy operates eight shipyards nationwide. Within each of these shipyards, the personnel departments', apprentice trades training group, in cooperation with the superintendents of each of the trades areas, administers a formal four - year apprentice trades training program. These programs operate in seventeen distinct technical trades areas within each of the eight shipyards. This apprentice program is perhaps the oldest continually operating program of its kind in the United States. However, little articulation and/or coordination had taken place with local educational agencies to provide the related classroom instruction. Instruction was either provided by shipyard personnel, or in some cases by consultants hired by the shipyard as instructors for these portions of the program. In either case appropriate local educational resources were not adequately used.

Several years ago, the U.S. Navy's Commander for Shipyard Training, together with the National Shipbuilding Research Program, embarked upon a project to bring local public educational agencies closer to the shipyards in support of the apprentice program. It was the desire of the Commander to have these related trades areas taught by appropriate local educational institutions. The objective of this linkage was to bring public education closer to the Federal employer (The shipyard), as well as offer college level training in the program, and give the apprentice an incentive to complete a job related college degree program. Specifically, certain objectives were established for this project in an effort to affect a better articulation between the shipyard and the local educational institution. These are:

* to ascertain the specific needs of the shipyard for related technical instruction which could be provided by the community college/technical institute linkages. Prior to commencing discussions with local educational officials, it was essential that the shipyard fully understand what subject matter and technical content they wished to externally procure. Additionally a full understanding of the best instructional styles and levels appropriate to the shipyard apprentice population was also necessary. It is interesting to add that this type of information varied significantly from yard to yard.

* to provide the shipyard instructional personnel with the specific skills to discuss, describe, and negotiate linkage agreements. A major problem which prevented shipyard personnel from venturing forward to affect this service linkage in the past was a lack of understanding on the part of shipyard personnel of the needs, constraints, and operational policies of educational institutions. Conversely, the educational community did not fully understand the requirements of the shipyard apprenticeship programs. Therefore, the major job would be to provide this information to the shipyard, and act initially as a liaison.

* to prepare appropriate formats and documentation necessary to effect the inter-organizational linkage. Program drafts of shipyard apprentice programs detailing related instructional requirements, attendance requirements, etc. all needed to be prepared in anticipation of moving ahead on the program.

* to monitor the initial program start- to ensure effectiveness of the training programs provided by the local educational agencies. The consultant served as a problem solver and liaison to the parties in order to ensure smooth implementation of the program.

Background:

Apprenticeship is a unique training system through which individuals acquire trade and craft skills and knowledge. Training typically combines daily on the job instruction in skills areas with classroom instruction in technical subjects related to work requirements [1]. The apprenticeship is deeply rooted in european and american educational heritage. Quimby [2] traces the historical roots of the apprenticeship form of training in colonial america. Rorobaugh [3] continues this historic portrayal through the machine age in the United States. Apprentices, as a social group of learners have not been without the traditional problems which face all social constituencies in our land. Marshall and Briggs [4] provide research insights into the Negro and the apprenticeship over a course of 200 years in the United States.

---

1. Rice, Eric and Spetz, Sally H. Introduction to Apprenticeship, 1982, Raleigh, N.C., Conserva, Inc.

2. Quimby, Ian M.G. Apprenticeship in colonial PPhiladelphia, 1985, New York, Garland Publishing Co.

3. Rorabaugh, W.J. The craft apprentice: from franklinn to the machine age in america, 1986, New York, Oxford University Press.

4. Marshall, F. Ray and Briggs, V. M. Jr. The negro and apprenticeship, 1967, Baltimore, The Johns Hopkins University Press.

The Navy apprentice programs [5] consist of formal classroom training in the related technical areas to each trade (shop math, chemistry, physics, mechanical drafting), formal skills training in controlled laboratory settings, and supervised, on-the-job training. The curriculum is structured and cross-referenced to a formal job/task analysis within each trade. Major training objectives of these programs are:

* to gain varied skills through instruction and experience in all major aspects of a shipyard trade or craft;

* to learn to work in harmony with different types of trades and crafts people in a working setting;

* to learn to work within a corporate/organizational structure;

* to learn about each skilled worker's part in the productivity plan of the industry and/or business;

* to benefit by wage and incentives such as increases in wage while progressing through the planned apprenticeship program;

---

5. U.S. Navy, Sea Systems Command. Learn A Trade: Apprenticeship at the Philadelphia Naval Shipyard. Washington, D.C., 1983.

* to enjoy increasing employability and economic security; and

* to receive recognition as a skilled worker, from peers, journeymen, employers, and union members.

Major government objectives of the program are:

* to develop and insure a supply of trained, skilled and knowledgeable workers and supervisors for shipyard operations;

* to increase worker productivity, overall skill levels and versatility;

* to lessen the need for active supervision of employees by developing initiative, pride in craftsmanship, and speed and accuracy in work;

* to continue to attract a constant flow of capable people into the trade/craft; and

* to control the overall training within the craft.

Method:

A contract was awarded to this author for consultative services to effect a process model to foster linkage between the Shipyard's Educational Office and the local educational agency (either a community college, technical institute/college, or adult education program). These services would include the establishing of a dialogue between the two parties, to promote an understand of the Shipyards' needs by the educational agency, and visa versa. It included development of suggestions and guidelines for overcoming various barriers to program success, and development of curricula, and ultimately, - program implementation.

The consultant initially surveyed and noted the available post-secondary programs in two geographical shipyard areas initially selected, - Portsmouth, N.H. and Philadelphia, PA. Prior to contacting the colleges, visits to each of the shipyard sites in these two geographical areas were made, and meetings with the shipyard educational officers were held. Discussions about past problems and experiences with their area colleges were noted, as well as each of their individual problems and concerns with these linkages. The next step was a survey of the local higher educational institutions for interest, and for existing programs which could either immediately meet the shipyard's needs, or be easily modified. Through a series of meetings with the parties at the various sites, and through meetings with the

college personnel at each site, consultative services proved useful in meeting the program development milestones, and in overcoming the individual jurisdictional, organizational, and programmatic obstacles. The consultant served to provide a continual liaison through dialogue between the shipyard and the college. Through this dialogue with the college, the needs, programs, processes, constraints, and requirements of the shipyard and government were conveyed. Through the dialogue with the shipyard, the college's requirements were conveyed. Planning for the curriculum was then undertaken.

Obstacles included geographical service area constraints on the part of most all of the college programs. In each of the two initial shipyard sites, employees crossed state and county lines to work in the shipyard. In the case of Portsmouth Naval Shipyard, which is physically located in Kittery Maine, employees travel from residences in Maine, New Hampshire, and Massachusetts. Therefore for a college to provide instructional services on the federal grounds in the shipyard, it would either need to be a Maine college, or have a service waiver from the state of Maine. Secondly, the question of out of state tuition for students taking college level credit needed to be addressed. The federal government provided the underwriting of those educational services which were part of the program of studies. However, it was the desire of the program administration to allow students to take courses for college credit, over and above the

actual apprentice program requirements. In each locale these details needed to be resolved. In Portsmouth, the actual college finally selected was New Hampshire Vo-Tec, and tuition vouchers allowing all employees to enroll as in-state residents was provided. Inter-state agreements were negotiated. The Philadelphia Shipyard ultimately negotiated an agreement with Community College of Philadelphia. Inter-agency agreements allowing New Jersey, Delaware, and out of county Pennsylvania residents to pursue course work for in-county rates was finally ratified.

A sample program of studies was developed at the Philadelphia Naval Shipyard. This program provided a course framework for all of the apprentice related instruction. Apprentices enrolled in the trade related courses as they progressed through the program. The other support and academic courses were taken on-base on the employee's own time. Coordination between the college and the government affected smooth scheduling to accommodate the employees.

The Sample Program

General Education:

ENG 101	Basic Expository Writing	3 credit/hours
ENG 112	Technical Writing	3 credit/hours
MATH 116	Arithmetic	3 credit/hours
CHEM 110	Intro. to Chemistry	4 credit/hours
PHYS 105	Survey of Physics	4 credit/hours
	Social Science elective	3 credit/hours
ARCH 109	Basic Drafting	4 credit/hours
CSTR 222	Blueprint Reading	3 credit/hours
	Practicum	35 credit/hours(credit for apprenticeship on the job training)
	TOTAL	62 credit/hours

A similar program was developed in New Hampshire.

Results/Conclusions

The successes of this program are of noteworthiness. There are operating three-year Associates Degree programs in each of the eight geographical areas of the Country. Each program is unique in its course structure, approach, delivery system, administrative structure, and relationship within the shipyard. Each program has had administrative and jurisdictional barriers to overcome. However, each program can also boast successes. Apprentice programs are viable mechanisms for the delivery of occupational education. This success story could serve as a model for partnerships of educational institutions and industry for delivery of quality apprenticeship programs.

ERIC Clearinghouse for Junior Colleges AUG 18 1989